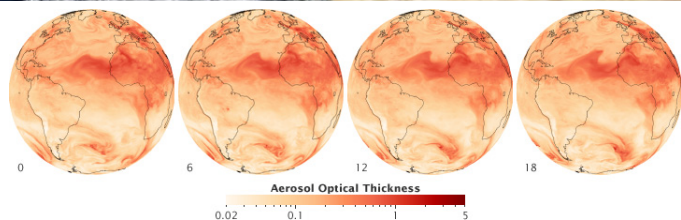


UCA Department of Chemistry Seminar

March 8, 2013 2:00 pm Laney 104

Courtney Hatch

Hendrix College



Atmospheric mineral dust aerosol: Laboratory and theoretical studies of indirect impacts on climate

Mineral dust aerosols are natural particles emitted into the atmosphere by strong winds over arid and semi-arid regions of the Earth's surface. Entrained mineral aerosol can remain in the atmosphere for a couple of weeks and become deposited over a large area of the world's remote oceans. Two major mechanisms by which mineral aerosol can indirectly impact the Earth's climate include, 1) providing micronutrients for photosynthetic species upon ocean deposition and 2) radiative effects from the ability of aerosol particles to take up water and form cloud droplets. The latter effect is currently one of the largest uncertainties in our understanding of climate change.

Clay minerals, including kaolinite, illite and montmorillonite clays, account for over half of the total atmospheric dust mass, yet have received very little attention in the atmospheric chemistry and climate community. During this seminar, I will present preliminary laboratory results of the effects of clay mineral dust deposition on phytoplankton growth rates under iron-enriched and iron-limited conditions. Additionally, I will report on initial results from combined laboratory and theoretical studies used in an effort to predict the Cloud Condensation Nuclei (CCN) activity of mineral dust aerosol in the atmosphere and to provide parameters for incorporation into existing climate models.

Lunch provided for students with the seminar speaker from
12:00 – 1:15 pm in Laney Hall Rm 105.
Contact P. Desrochers (patrickd@uca.edu) for more information.